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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/134,147	08/14/1998	WALLACE T.Y. TANG	50169/110	7613
32588	7590	08/12/2004		
APPLIED MATERIALS, INC. 2881 SCOTT BLVD. M/S 2061 SANTA CLARA, CA 95050				
EXAMINER MACARTHUR, SYLVIA				
ART UNIT		PAPER NUMBER		
1763				

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/134,147

Applicant(s)

TANG, WALLACE T.Y.

Examiner

Sylvia R MacArthur

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-19 and 32-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-19 and 32-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 August 1998 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/15/2004
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 11-14, 16, 18, 19, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishiguchi et al (JP 02-222533).
3. Regarding claim 11: Nishiguchi et al teaches a CMP apparatus 1 for planarizing a film on one side of the substrate having two sides, the polisher comprising:

At least one light source 6 that transmits light toward the substrate from the side with the film illuminates at least one section on the film and reflects light off the illuminated section of the film; and at least one device photodetecting elements 7 to receive light from the film on the substrate while the film is being polished, the at least one device being operable to monitor a dimensional change of the film based on the reflected light from the film on the substrate.

Regarding claim 12: The device is positioned on the same side of the substrate as the light source, see Figure 1.

Regarding claim 13: The at least one light source (illuminating elements 6) is operable to illuminate such that each monitored section is minimized in size to remove the signal problems.

Regarding claim 14: The plurality of light sources 6 are each configured to illuminate a section P; the section illuminated is a dedicated measurement area.

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Regarding claim 16: Nishiguchi teaches a CMP apparatus planarizing a film on one side of a substrate with two sides the polisher comprising at least one light source and at least one means for receiving the reflected light. The means monitors thickness changes of the film based on the reflected light from the film on the substrate.

Regarding claim 18: The at least one light source (illuminating elements 6) is operable to illuminate such that each monitored section is minimized in size to remove the signal problems.

Regarding claim 19: The plurality of light sources 6 are each configured to illuminate a section P, the section illuminated is a dedicated measurement area.

Regarding claim 34: The device 7 is positioned on the same side of the substrate as the light source 6.

Regarding claim 35: The plurality of light sources 6 are each configured to illuminate a section P; the section illuminated is a dedicated measurement area.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 15, 17, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiguchi et al in view of Greco et al (US 4,975,141).

The teachings of Nishiguchi et al were discussed above.

Regarding claim 15: Nishiguchi et al fails to teach that the light source illuminates more than one section.

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Greco et al teaches a method for detecting the endpoint in an etching process. The method comprises directing a laser beam to fiducial areas see the paragraph connecting col. 3 and 4.

The motivation to modify the teaching of Nichiguchi to illuminate more than one section is to provide more accurate measurement of the endpoint. A plurality of sampling points can be averaged to account for errors due to topography.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the teaching of Nichiguchi to illuminate more than one section of the substrate.

Regarding claims 17 and 32: Nishiguchi et al fails to teach that the photodetector is connected to either an interferometer or a spectrometer.

Greco et al teaches a detector 40 monitored by a reflected light interferometer or optical emission spectrometer, see col. 4 lines 1-7.

The motivation to modify the teachings of Nishiguchi et al to connect the photodetector to either an interferometer or a spectrometer is that they are known suitable means of detecting the endpoint of semiconductor manufacturing process.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the teachings of Nishiguchi et al to connect the photodetector to either an interferometer or a spectrometer.

Regarding claim 33: Nishiguchi et al fails to teach that the light source is a laser.

Greco et al teaches that an excimer laser 36 is used.

The motivation to use a laser as the light source of Nishiguchi et al is that it is a known suitable source of light according to col.4 lines 55-68.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the teachings of Nishiguchi et al to provide a laser as taught by Greco et al.

Response to Arguments

6. Applicant's arguments, filed 5/24/2004, with respect to the rejection(s) of claim(s) 11-19 and 32-35 under 102(b) and 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Nishiguchi et al (JP 02-222533).

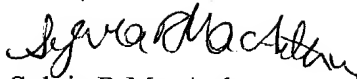
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the core hours of 8 a.m. and 2 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 571-272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Sylvia R MacArthur
Patent Examiner
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August 3, 2004